PHIN VOCABULARY ACCESS AND DISTRIBUTION SYSTEM (VADS)

3.0 RELEASE NOTES

Version 1.0
1/30/2009

Centers for Disease Control and Prevention

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1. INTRODUCTION

The Public Health Information Network (PHIN) Vocabulary Access and Distribution System (VADS) is a vocabulary server that allows CDC programs and Public Health Partners to search, browse, and download vocabularies required for PHIN messaging and applications needed for Public Health Surveillance. The primary objective of PHIN VADS is to be the distribution source for vocabularies based on the Consolidated Health Informatics initiative.

2. BACKGROUND

One of the primary challenges facing public health today is the use of standardized vocabularies to represent public health information within numerous applications and messages. Currently, some public health professionals use their own terminology and codes to represent public health concepts, often with inconsistent meaning. Even when controlled vocabularies are used, inconsistencies among versions challenge interpretation. The use of these non-standard vocabularies makes it almost impossible for precise communication to occur across applications. Controlled vocabularies, such as the Systematic Nomenclature for Medicine (SNOMED) or Logical Observation Identifiers Names and Codes (LOINC), establish standardized, version-controlled coded concepts which, if used consistently, could significantly reduce the level of semantic ambiguity in public health information.

PHIN Vocabulary Services strives to enable the consistent and accurate representation of information by encouraging and supporting the use of Vocabulary Standards to promote semantic interoperability among public health systems. Working with Standards Development Organization (SDO) terminology experts, the PHIN Messaging and Vocabulary Team actively participates in the development and identification of vocabularies important to the public health arena. SDOs and related work groups include Health Level 7 (HL7), Consolidated Health Informatics Initiative (CHI), Health Information Technology Standards Panel (HITSP), and American Health Information Community (AHIC).

PHIN Vocabulary Access and Distribution System (PHIN VADS) is a web-based enterprise vocabulary system for accessing, searching, and distributing vocabularies used within the PHIN. PHIN VADS serves as a single source of standard vocabularies to the CDC and its public health partners. PHIN VADS promotes the use of standards-based vocabulary within PHIN systems to support the exchange of consistent information among public health partners.

3. PHIN VADS 3.0 ARCHITECTURE

The purpose of the new PHIN VADS architecture is to provide greater implementation flexibility, ensure better adherence to national and Centers for Disease Control (CDC) standards, improve the ability to release vocabulary updates more frequently, minimize vocabulary maintenance overhead, improve vocabulary governance, and deliver services that better meet public health community needs.

The PHIN VADS 3.0 release includes foundational building blocks that enable the next generation of vocabulary services to be offered to stakeholders. In particular, the following three components were re-architected or replaced for the 3.0 release: the VADS 2.x internal data model, the VADS 2.x library (which was replaced with a standards-based web service interface), and the VADS 2.x Browser web application. The new VADS 3.0 Browser uses the VADS 3.0

service layer to access vocabulary, maintaining the separation of user interface functions from business logic and vocabulary data provisioning.

The VADS 3.0 Browser web application provides the next generation of vocabulary distribution services to the user community. The user interface provides more responsive, intuitive, and user-friendly access to VADS content via enhanced terminology search and browse functions.

Overview of Functions:

1. Enhanced Search / Browse functionality
    a. Intuitive user interface
    b. More extensive search options
    c. Standardized result set sort order
2. User-specified Search refinement functionality via Vocabulary Object filters, Search Type options, and Search Within fields.
3. Executable Vocabulary View and Value Set searches against
    a. Current version (default), or
    b. Version As of Date
4. Enhanced Download functionality with consistent formats, improved speed and support for large data sets.

The VADS 3.0 Web Service Architecture provides a common service model for implementing and consuming vocabulary services across the public health enterprise. It is designed to be the sole provider of access to the underlying vocabulary content, stored in a VADS 3.0 Data Model-compliant content database. The first web service to be implemented in the new Web Service Architecture is the VADS 3.0 Vocabulary Service, which currently serves the VADS 3.0 Browser, and is expected to support other applications in the future.

Specific functionality provided by the VADS 3.0 Vocabulary Service includes support for search, browse, download. The Service allows the retrieval of Vocabulary Objects or Object Identifiers on order to support client caching of vocabulary objects for improved performance.

The VADS 3.0 Data Model supports stability of the VADS product over time and improves consistency of the information presented by VADS services. Additionally, it provides numerous new features and capabilities, such as support for version control of vocabulary and a more consistent representation of the data across code systems. The changes made to the Data Model between 2.x and 3.0 support the need to move away from the authoring and development of vocabulary using flat data representation and spreadsheets, and toward an integrated workflow that incorporates authoring, publishing and distribution. These features are necessary to support the new generation of VADS users and the sharing of data across public health.

The new PHIN VADS 3.0 Database provides the following benefits:

- Database scalability
- Improved user interface performance.
- Rapid deployment of vocabulary content
- Version control of Vocabulary Views and Value Sets
- Enhanced Searches by Alternate Designation, Definitions, Table 0396 Identifiers, & Assigning Authority.

4. RELEASE NOTES FOR PHIN VADS 3.0

The purpose of the *Release Notes* is to communicate the content, application, web service, and database updates for Release 3.0 of PHIN VADS. For future releases, the following four sections will be updated, as well as the content and application release version numbers and release dates.

- Content Release Version: 3.0.0
- Content Release Date: 01/30/2009
- Application Release Version: 3.0.0
- Application Release Date: 01/30/2009

4.1 CONTENT UPDATES

Most of the code systems have been updated. Synonyms, hierarchical relationships and extended metadata have been added to the code system concepts. The vocabulary objects dependent upon the code systems such as value sets, vocabulary views and groups also have been updated in this release.

Please view the Code System Representation link in the left navigation menu to review a more comprehensive mapping from the SDO Code Systems to the VADS 3.0 data model.

4.2 APPLICATION UPDATES

The VADS Browser (UI) has been revamped in order to provide stakeholders with a user-friendly and robust application that provides search and browse functionality of the following Vocabulary Objects:

- Value Sets
- Value Set Concepts
- Code Systems
- Code System Concepts
- Views
- Groups

The VADS Browser also provides consistent and efficient download formats for the following:

- Value Sets
- Value Set Concepts
- Views
- Groups

The VADS Browser also supports the display and download of versioned Value Sets and Views.

Please view the VADS 3.0 Browser's Help files in order to obtain in-depth details regarding the search, browse, and download of Vocabulary Objects. To access Help, choose the Help link at the top of the page.

4.3 WEB SERVICE UPDATES

The VADS Vocabulary Service was added to the release in order to provide the new VADS Browser with access to the underlying vocabulary data in a manner consistent with the new VADS 3.0 Architecture. It supports a standardized web service interface that allows users to access the underlying vocabulary data, stored in a VADS 3.0 content database, in a consistent and platform-independent manner.

4.4 DATABASE UPDATES

Approximately 30 Code Systems were reacquired from the SDO source out of a total 116 Code Systems within VADS.

The VADS 3.0 Database contains the following content:

- 116 Code Systems
- 951,015 Code System Concepts
- 569,483 Concept Relationships
- 631,048 Concept Alternate Designations
- 1,334,855 Concept Extended Properties
- 353 Value Sets
- 723,670 Value Set Concepts
- 28 Vocabulary Views with 1,262 Value Set Associations
- 15 Vocabulary Groups with 510 Value Set Associations

Concept Relationships have been added for the following Code Systems:

- NDF-RT
- Race & Ethnicity
- SNOMED-CT

Alternate Designations have been added for the following Code Systems:

- FIPS County
- FIPS State
- ICD9
- ISO Country
- ISO 639-2
- PHINVS
- Race & Ethnicity
- SNOMED
- SOC2000

Extended Properties have been added for the following Code Systems:

- RX Norm (RxAUI, Term Type)
- FDA NDC (Strength, Unit, RxOTC, Listing Seq No)
- NDF-RT (Term Type)
- EPA SRS (CAS Number, Registry Name)

- Unit Of Measure (Kinds of Qty, Term Type)
- USGS GNIS (FIPS County Code, State County Code, etc.)
- FIPS County (State Numeric, State Alpha, GNIS FeatureID, etc.)
- ISO Country Subdivision (Alpha Code 2, SubDivision Category)
- CDC Race & Ethnicity (Hierarchical Code)
- CDC NND - Notifiable Event Disease Condition (Reportable to the NNDSS)
- PHIN Questions (Suggested Data Type, Suggested Value Set)

Please view the VADS 3.0 Browser's Help files in order to obtain the Data Model. Choosing the PHIN VADS Model link in the left navigation menu takes you directly to the Data Model.